Blanc in 1774, has been abundantly confirmed since by physicists. When in very cold regions, then the sun's rays are felt most burning. The members of Nordenskiöld's Greenland expedition suffered considerably from sunburning. The exposed skin was frequently the seat of an exudative dermatitis. A similar condition is well known amongst Alpine climbers as "Schneerose." Why should the eyes escape, then, an irritation which is so active in other exposed parts? is the reasoning to which Berlin leads up. He considers snow-blindness to be simply, as in his experience it has all the appearance of being, an erythematous conjunctivitis. Tables are given which show that it is most frequent at those times of the year when the solar radiation penetrates most strongly to the surface of the earth. It is mostly met with, too, in very dry regions, and is absent in Norway and Iceland, as he believes, on account of the influence of the Gulf Stream on the moisture of the atmosphere. It was shown by Jensen, in experiments on different animals, that less than 10 per cent. of the heat rays impinging on the eye penetrate to the retina, while 50 per cent., at least, are absorbed by the cornea. The cornea, therefore, receives the greatest burning, and this may well account for the photophobia, as well as for the occasional ulceration referred to. The snow and ice hazes, which have also been found to cause snow-blindness, and the nature of which has never properly been explained, he considers to be cirri which have descended to the ground, and which produce their effect on the eye by simple mechanical irritation.

OTOLOGY.

UNDER THE CHARGE OF

CHARLES H. BURNETT, M.D.,

AURAL SURGEON, PRESBYTERIAN HOSPITAL, ETC., PHILADELPHIA.

FOREIGN BODIES IN THE EAR.

DR. A. MARIAN, of Aussig, Bohemia, adds one more timely warning on this important subject (*Prager med. Wochenschrift*, Oct. 17, 1888). In answer to the question "What shall the general practitioner do when confronted with a foreign body in the ear?" he says: The first thing to be done is to convince himself that a foreign body is really in the ear; also whether it is really in the ear the patient says contains it. It has happened that the patient, in his excitement, has presented the wrong ear for treatment. If, now, the foreign body being present in the ear, any instrument is inserted, without the proper illumination of the ear, not only will the patient suffer pain, but he runs a great risk of receiving an injury to his membrana tympani. After having diagnosticated the presence of a foreign body with the aid of a mirror, the next step is to determine its position, whether it lies in the meatus, the isthmus, or against the membrana in the fundus of the auditory canal. Then the employment of a moderately strong syringing with warm water will usually dislodge and bring out the foreign substance, if it is not wedged tight.

"In all cases, however, in which the general practitioner is unable to determine accurately the precise situation of the foreign body, or in which the foreign substance is imbedded or wedged in the canal, or when the latter has been irritated, wounded, and swollen, through previous unskilful attempts at extraction, the advice is given not ever to attempt syringing the ear, but to call in the service of an aurist. Because it now becomes necessary to adopt a treatment which no general practitioner of medicine is able to carry out."

SOFT CHANCRE OF THE MIDDLE EAR.

DR. GURANOWSKI (*Deutsche med. Zeitung; Annales des Maladies de l'Oreille*, Nov. 1888) reports what he considers may be a unique case in science. The above-named peculiar lesion occurred in a young servant girl affected with soft phagedenic chancres of the genital organs; auto-inoculation occurred in the nose from taking snuff with soiled fingers. During treatment of this rhinitis, an acute otitis media developed on the left side, with perforation of the membrana tympani. The etiology of this was rendered clearer by the occurrence, soon after, of small chancres on the tragus and external auditory meatus.

Cure was effected by the application of iodoform and lavage of the Eustachian tube by boracic acid water.

BACTERIOLOGICAL RESEARCHES IN CASES OF ACUTE OTITIS MEDIA.

DR. NETTER of Paris, has made a prolonged study of bacteriology in a number of cases of otitis media acuta, and has published an exhaustive brochure on his work (*Annales des Maladies de l'Oreille*, etc., Oct. 1888).

He starts with the recognition of what he considers a fact, that "otitis media acuta" is not unique and always due to the same microörganism. There are many forms of otitis, each having a special microbe. Each of these forms of disease presents special characteristics dependent upon the properties of the microbes which have given them origin. Hence the undertaking of Netter has not simply a theoretical interest; it has a practical bearing, as it furnishes some important prognostic points.

He claims that four distinct forms of otitis media acuta exist, viz.:

1. Otitis due to the pyogenic streptococcus of Netter, Zaufal, Moos, Holst, and Dunin.

3. Otitis caused by the pneumococcus of Fränkel, also recognized by Netter, Zaufal, and others.

3. An otitis caused by the pneumo-bacillus of Friedländer and Zaufal.

4. An otitis associated with the presence of the pyogenic staphylococcus. (Fränkel, Simmonds, Dunin, Rohrer, and Netter.)

Otitis dependent upon the presence of the streptococcus is the most frequent. It is also claimed that the microbe productive of lobar pneumonia may produce an acute otitis media, and examples of such cases are given.

The microbes of Friedländer have also been demonstrated to be present in the exudation of an acute otitis (Zaufal).

Netter has observed four cases in which the staphylococcus aureus was associated with streptococcus or the pneumococcus, in an acute otitis media.

All the pathogenic microbes which are found in otitis media can be found in the nasal fossæ, the mouth, and the pharynx of healthy subjects.

The frequent occurrence of otitis on both sides is due, in the great majority of cases, to the pathogenic agents which come from the bucco-pharyngeal cavity, and which find their way into the tympanic cavity through the Eustachian tube. The mode of invasion explains the production of otitis in general maladies like typhoid fever, measles, diphtheria, scarlatina, etc.

Sometimes microbes may reach the middle ear by the bloodvessels or the lymphatics, but this is a very rare occurrence. The usual mode of invasion of the middle ear shows the importance of watching the mouth and the pharynx.

It is necessary to endeavor to obtain an antisepsis as perfect as possible in these cavities, especially in measles and typhoid fever. Hence the antiseptic measures of the present day in ear diseases are amply justified by what we know of the various microörganisms which produce otitis media and its complications.

BACTERIAL DIAGNOSIS AND PROGNOSIS IN SUPPURATIONS OF THE MIDDLE EAR.

PROF. MOOS, of Heidelberg, has made an interesting communication of this subject in the *Deutsche med. Wochenschrift*, Nov. 1, 1888. He claims for Zaufal the merit of having shown that genuine otitis media acuta occurring in otherwise healthy individuals, in consequence of a cold in the head and respiratory tract, is largely influenced by the pneumo-bacillus of Friedländer, and the diplococcus of Fränkel-Weichselbaum. It appears that Zaufal has further shown that the presence of the streptococcus pyogenes in the secretion from an inflamed middle ear is of the greatest importance in a prognostic sense, as it has been so often found in the most serious and life-threatening cases of middle ear inflammation.

Moos then gives the history of three cases of ear disease, illustrative of the above:

In the first case an acute exacerbation occurred in a diabetic patient suffering from chronic purulent otitis media. The mastoid cells then became involved. The pus removed from the mastoid abscess contained the diplococcus of Fränkel-Weichselbaum.

In the second case an acute otitis media occurred, which was followed in the seventh week by inflammation of the mastoid cells. Numerous streptococci and diplococci were found in the pus liberated from the mastoid.

In the third case there was a chronic purulent otitis media with polypi and cholesteatomatous masses in the drum cavity. Caries, too, was found, and phlebitis and thrombus of the lateral sinus ensued. Finally, a septic thrombus formed in the bulb of the jugular vein; meningitis purulenta at the base of the brain and an abscess in the cerebellum were found after death. Large quantities of streptococci were found in the cholesteatomatous masses.

PATHOGENESIS OF BACTERIA IN PURULENT PROCESSES IN THE EAR.

DR. ROHRER, of Zurich, explains the pathogenesis of bacteria in the ear as follows (*Deutsche med. Wochenschrift*, Nov. 1, 1888): The localization of bacteria from the mouth and naso-pharynx occurs by direct continuity and contiguity through the Eustachian tube, or by means of the bloodvessels and lymphatics. The morphology of the bacteria varies in fetid and non-fetid secretions and also in that of acute and chronic cases. In fetid secretions cocci and bacilli were constant elements; in non-fetid secretions cocci only were found. In the secretion of acute cases bacilli were found only after the secretions became fetid.

In dermatoses of the external meatus and concha there were 82 per cent. of cocci to 18 per cent. of bacilli. In fetid dermatoses there are 67 per cent. of cocci to 33 per cent. of bacilli. In non-fetid dermatoses only cocci of various forms were found.

THE SPHENOID BONE. SOME OF ITS POSSIBLE ACOUSTIC FUNCTIONS.

MR. J. A. MALONEY, otacoustician, of Washington, D. C., has made a series of tests of the conductivity of sound possessed by some of the cranial bones, notably the frontal, the occipital, the parietal, the ethmoid, and the sphenoid (*New York Med. Journal*, Aug. 11, 1888). All of them manifested a very weak conductivity of sound excepting the sphenoid. Not only was a little ball suspended against a wing of the sphenoid thrown off by a slight tap with a mallet on the opposite wing, but when the sphenoid was made to communicate its vibrations to the diaphragm of a microphone in electric circuit with a telephone receiver, merely drawing lightly a fine silk thread over the free wing of the sphenoid was heard distinctly in the receiving telephone. Also breathing gently through a tube against one wing could be heard in the receiver. The temporal bone was submitted to the same tests, but gave similar results only at one point, viz., the jugular fossa. No other cranial bone gave these results in conductivity of sound.

From these experiments, Mr. Maloney traces to the sphenoid and the temporal bones the phenomena of—

1. *Localization of sound.* "The direct or maximum result in localization is probably due to aërial conduction through the meatus auditorius externus. The indirect or bone conduction being through the sphenoid (from one wing to the other and thence to the internal ear upon the opposite side), this, probably, gives a maximum and minimum sensation by which the mental act of localization of sound is accomplished."

2. *Tinnitus aurium.* Since the sphenoid seems extremely susceptible to transmit minute sound vibrations, Maloney suggests that the pumping sounds so frequently mentioned as this kind of subjective noise in the head, may be due to an aneurism or some abnormal condition increasing in intensity the flow of blood through the internal carotid, ophthalmic, or great meningeal arteries in their passage through this bone, or to the same factors through the jugular, in its relation to the temporal bone.

3. *Autophonia.* This phenomenon is explained as follows: "When the Eustachian tubes are closed entirely (by which equal pressure upon each side of the membrana is prevented), may not the strong vibrations of air set up in the larynx and pharynx (the mouth cavity being known as a powerful resonator) be sent to the seat of audition through the agency of the sphenoid bone, particularly at the part situated between the ethmoid and occipital bones?"

4. *Color audition.* "May not color audition, in view of the readiness with

which the sphenoid bone takes up and delivers vibrations, be due to mechanical stimulation of the optic nerve by impingement of the same upon the sphenoid bone in its passage through the optic foramen?"

DISEASES OF THE ACOUSTIC NERVE.

DR. GIUSEPPPE GRADENIGO, of Padua, has recently made a series of clinical studies on the above-named subject, and draws the following conclusions (*Archiv für Ohrenheilkunde*, Bd. 27, Nov. 1888): The acoustic nerve participates, in general, more rarely with endocranial diseases than the optic nerve. Further, it is claimed that the acoustic nerve in the various forms of endocranial diseases which accompany neuritis of the optic nerves, manifests slight disturbances in nutrition, which cannot be demonstrated in the functional tests, and clinically show only an abnormal excitability. Finally, it is claimed that in rare cases in which an endocranial disease is attended by a pronounced functional disturbance in the auditory nerves, a peculiar form of deafness may occur, which is distinguished from the deafness produced by diseases of the internal ear, by the fact that the perception of high notes and watch is maintained, but that for intermediate notes is defective.

DISEASES OF THE LARYNX AND CONTIGUOUS STRUCTURES.

UNDER THE CHARGE OF

J. SOLIS-COHEN, M.D.,

OF PHILADELPHIA.

DIPHTHERIA; TOPICAL TREATMENT WITH INSUFFLATIONS OF FINELY PULVERIZED SUGAR.

C. LORAY, of Frankfurt am Main (*Deutsche med. Woch.*, Nov. 15, 1888), as the result of more than eighty observations in children from one year upward and in adults, in all gradations of the disease, finds that the duration and extent of the deposit are much diminished, the fetid odor quickly overcome, the membrane readily detached under copious mucous secretion, and the cough facilitated in many cases of involvement of the larynx. In several cases of extensive ulceration, fatal by sepsis or by pneumonia, Prof. Weigert and his assistants found separation of the membrane in a much more advanced stage than in similar cases which had been treated by other methods. Loray neglects to state the frequency with which he makes the insufflations.

Vinegar is highly recommended by DR. FRIEDRICH ENGELMANN, of Kreutznach (*idem.*), as the very best agent of a very extensive detailed series with which he has made experimental observations.